

Amendment and Response

Applicant: Vicente V. Cavanna et al.

Serial No.: 10/080,886

Filed: February 22, 2002

Docket No.: 10011175-1

Title: METHODS OF COMPUTING THE CRC OF A MESSAGE FROM THE INCREMENTAL CRCs OF COMPOSITE SUB-MESSAGES

REMARKS

This is responsive to the Non-Final Office Action mailed July 28, 2004. In that Office Action, the Examiner placed a Restriction Requirement under 35 U.S.C. §121 to Group I (claims 1-6 and 15-17), Group II (claims 7-10), and Group III (claims 11-14).

Additionally, the Examiner rejected claims 1-6 and 15-17 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Claims 15-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Burshtein, U.S. Patent No. 6,038,577 ("Burshtein"). Claims 1-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Burshtein.

With this Response, claims 1, 3, 5, and 15 have been amended, and claims 7-14 have been cancelled. Claims 1-6 and 15-17 remain pending in the application and are presented for reconsideration and allowance.

Restriction under 35 U.S.C. §121

In the Office Action, the Examiner placed a restriction requirement under 35 U.S.C. §121 on the present application, indicating restriction to one of the following groups of claims is required: Group I (claims 1-6 and 15-17), Group II (claims 7-10), and Group III (claims 11-14). In a telephone conference held July 12, 2004 between Pamela Kee and the Examiner, Applicant provisionally elected the claims of Group I (claims 1-6 and 15-17). With this Amendment, Applicant affirms the election of the claims of Group I (claims 1-6 and 15-17), and claims 7-10 and 11-14 have been formally cancelled without prejudice.

Rejections under 35 U.S.C. §112

The Examiner rejected claims 1-6 and 15-17 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Examiner stated that "[c]laim 1 recites the limitation 'the CRC generating polynomial' in lines 1 and 2. There is insufficient antecedent basis for this limitation in the claim." (Office Action at para. no. 2, page 6). Applicant has amended claim 1 to change the identified recitation to "a CRC generating polynomial".

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The Examiner stated that “[c]laim 1 recites, ‘examining each bit of N, wherein N equal $n \bmod (2^{m-1})$ ’, which makes no sense since it is not clear how a bit can relate to a number N.” (Office Action at para. no. 2, page 6). Applicant has amended claim 1 to change the identified recitation to “examining each bit of N, where N is a binary representation of a result of $n \bmod (2^m - 1)$ ”.

The Examiner stated that “[c]laim 1 recites the limitation ‘the most significant bit’ in lines 5 and 6. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 6). Applicant has amended claim 1 to change the identified recitation to “a most significant bit”.

The Examiner stated that “[c]laim 1 recites the limitation ‘the least significant bit’ in line 6. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 6). Applicant has amended claim 1 to change the identified recitation to “a least significant bit”.

The Examiner stated that “[c]laim 1 recites the limitation ‘the next state’ in line 10. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 7). Applicant has amended claim 1 to change the identified recitation to “a next state”.

The Examiner stated that “[t]he variables n, m, and N in claim 1 are undefined.” (Office Action at para. no. 2, page 7). Applicant has amended claim 1 to indicate that the variables n and m are “integers”, and that N “is a binary representation of a result of $n \bmod (2^m - 1)$ ”.

The Examiner stated that “[c]laim 5 recites the limitation ‘m-bit CRC is equal or congruent to one’ in lines 2 and 3, which makes no sense since an m-bit CRC is an m-bit vector and not a number.” (Office Action at para. no. 2, page 7). Applicant has amended claim 5 to delete this recitation.

The Examiner stated that “[c]laim 5 recites, ‘examining each bit of N, where N equals $n \bmod (2^{m-1})$ ’, which makes no sense since it is not clear how a bit can relates to a number N.” (Office Action at para. no. 2, page 7). Applicant has amended claim 5 to change the identified recitation to “examining each bit of N, where N is a binary representation of a result of $n \bmod (2^m - 1)$ ”.

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The Examiner stated that “[c]laim 5 recites the limitation ‘the most significant bit’ in lines 5 and 6. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 7). Applicant has amended claim 5 to change the identified recitation to “a most significant bit”.

The Examiner stated that “[c]laim 5 recites the limitation ‘the least significant bit’ in line 6. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 7). Applicant has amended claim 5 to change the identified recitation to “a least significant bit”.

The Examiner stated that “[c]laim 5 recites the limitation ‘the next state’ in line 10. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 7). Applicant has amended claim 5 to change the identified recitation to “a next state”.

The Examiner stated that “[t]he variables n , m , and N in claim 5 are undefined.” (Office Action at para. no. 2, page 7). Applicant has amended claim 1 to indicate that the variables n and m are “integers”, and that N “is a binary representation of a result of $n \bmod (2^m - 1)$ ”.

The Examiner stated that “[c]laim 15 recites, ‘examining each bit of N , where N equals $n \bmod (2^{m-1})$ ’, which makes no sense since it is not clear how a bit can relate to a number N .” (Office Action at para. no. 2, page 7). Applicant has amended claim 15 to change the identified recitation to “examining each bit of N , where N is a binary representation of a result of $n \bmod (2^m - 1)$ ”.

The Examiner stated that “[c]laim 15 recites the limitation ‘the most significant bit’ in lines 4 and 5. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 7). Applicant has amended claim 15 to change the identified recitation to “a most significant bit”.

The Examiner stated that “[c]laim 15 recites the limitation ‘the least significant bit’ in line 5. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para. no. 2, page 7). Applicant has amended claim 15 to change the identified recitation to “a least significant bit”.

The Examiner stated that “[c]laim 5 recites the limitation ‘the next state’ in line 9. There is insufficient antecedent basis for this limitation in the claim.” (Office Action at para.

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no. 2, page 7). Applicant has amended claim 5 to change the identified recitation to "a next state".

The Examiner stated that "[t]he variables n , m , and N in claim 15 are undefined." (Office Action at para. no. 2, page 7). Applicant has amended claim 15 to indicate that the variables n and m are "integers", and that N "is a binary representation of a result of $n \bmod (2^m - 1)$ ".

In view of the above, Applicant respectfully submits that claims 1-6 and 15-17 are not indefinite under 35 U.S.C. §112, second paragraph, and respectfully requests removal of the rejection of these claims under 35 U.S.C. §112, second paragraph.

Rejections under 35 U.S.C. §102

The Examiner rejected claims 15-17 under 35 U.S.C. §102(b) as being anticipated by Burshtein, U.S. Patent No. 6,038,577 ("Burshtein"). Independent claim 15, as amended, includes the limitation "examining each bit of N , where N is a binary representation of a result of $n \bmod (2^m - 1)$ ". Regarding independent claim 15, the Examiner stated that "Burshtein teaches . . . examining each bit of N , where N equals $n \bmod 2^{m-1}$ ($N = q = n$ in Figure 5" (Office Action at para. no. 3, page 8). The Examiner further stated that "Note: $q = q \bmod 2^{m-1}$ since $I \leq m$ in equation 12 in column 6 of Burshtein". (Office Action at para. no. 3, page 8). Claim 15 recites " $n \bmod (2^m - 1)$ ", not " $n \bmod (2^{m-1})$ ". Thus, even if the Examiner's contention that $q = q \bmod 2^{m-1}$ were true, this does not teach or suggest " $n \bmod (2^m - 1)$ ", as recited in claim 15. There is no teaching or suggestion in Burshtein that $q = q \bmod 2^m - 1$. Applicant also respectfully disagrees with the Examiner's contention that in Burshtein, $q = q \bmod 2^{m-1}$, "since $I \leq m$ in equation 12 in column 6 of Burshtein". There is no teaching or suggestion in Burshtein that $q = q \bmod 2^{m-1}$ (or that $q = q \bmod 2^m - 1$), and the Examiner has not shown how this contention results from the statement that $I \leq m$ in equation 12. Burshtein does not teach or suggest "examining each bit of N , where N is a binary representation of a result of $n \bmod (2^m - 1)$ ", as recited in independent claim 15.

In view of the above, independent claim 15 is not taught or suggested by Burshtein. In addition, dependent claims 16 and 17, which further limit patentably distinct claim 15, are also believed to be allowable over the cited reference. Allowance of claims 15-17 is respectfully requested.

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Rejections under 35 U.S.C. §103

The Examiner rejected claims 1-6 under 35 U.S.C. §103(a) as being unpatentable over Burshtein. With respect to independent claims 1 and 5, the Examiner acknowledged that "Burshtein does not explicitly teach that a_0, \dots, a_{m-1} in Figure 5 is an m-bit CRC." (Office Action at para. no. 4, page 10). There is no teaching or suggestion in Burshtein regarding CRC's, let alone any teaching or suggestion regarding adjusting an m-bit CRC of a sub-message corresponding to a composite sub-message having n trailing zeroes as recited in independent claims 1 and 5.

In view of the above, independent claims 1 and 5 are not taught or suggested by Burshtein. Applicant respectfully requests allowance of claims 1 and 5. If the Examiner maintains the rejection of claims 1 and 5, Applicant respectfully requests in accordance with M.P.E.P. § 2144.03 that the Examiner cite a reference to teach the further limitations of claims 1 and 5. Dependent claims 2-4 and 6, which further limit patentably distinct claim 1 or claim 5, are also believed to be allowable over the cited reference. Allowance of claims 2-4 and 6 is respectfully requested.

CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1-6 and 15-17 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-6 and 15-17 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(b)(c). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-1078.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to either Pamela Lau Kee at Telephone No. (408) 553-8043, Facsimile No. (408) 553-3059 or Jeff A. Holmen at Telephone No. (612) 573-0178, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Agilent Technologies, Inc.
Intellectual Property Administration
Legal Department, M/S DL429
P.O. Box 7599
Loveland, CO 80537-0599

Respectfully submitted,

Vicente V. Cavanna et al.,

By their attorneys,

DICKE, BILLIG & CZAJA, PLLC
Fifth Street Towers, Suite 2250
100 South Fifth Street
Minneapolis, MN 55402
Telephone: (612) 573-0178
Facsimile: (612) 573-2005

Date: 10/28/04
JAH:jmc

Jeff A. Holmen
Jeff A. Holmen
Reg. No. 38,492

CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being deposited in the United States Postal Service, as first class mail, in an envelope address to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 28th day of October, 2004.

By Jeff A. Holmen
Name: Jeff A. Holmen